

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 December 2003 (24.12.2003)

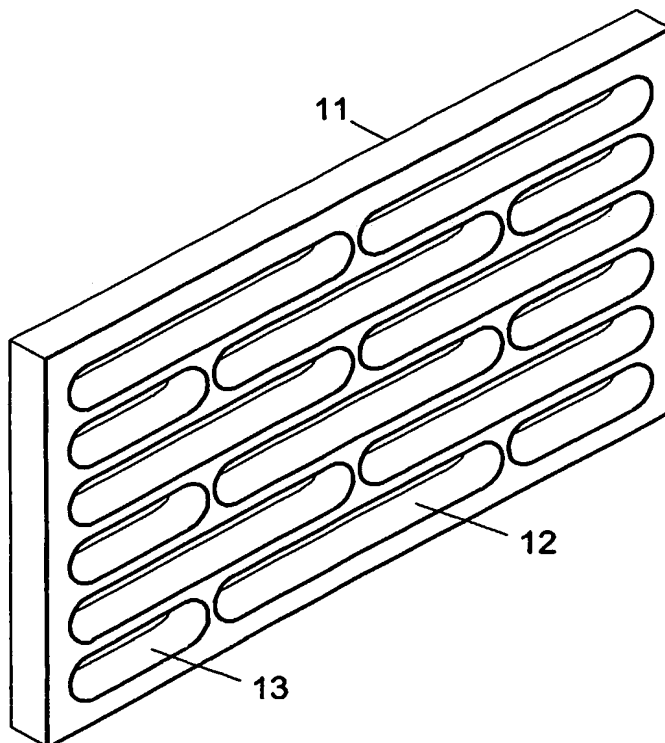
PCT

(10) International Publication Number
WO 03/106802 A1

- (51) International Patent Classification⁷: **E06B 9/24** (74) Agent: **ZACCO DENMARK A/S**; Hans Bekkevolds Allé 7, DK-2900 Hellerup (DK).
- (21) International Application Number: **PCT/DK03/00405**
- (22) International Filing Date: 18 June 2003 (18.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PA 2002 00929 18 June 2002 (18.06.2002) DK
- (71) Applicant (for all designated States except US): **TEKNOLOGISK INSTITUT** [DK/DK]; Gregersensvej, DK-2630 Taastrup (DK).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **BEZZEL, Eik** [DK/DK]; Møllebjergvej 16, DK-4330 Hvalsø (DK). **LAURITZEN, Hanne** [DK/DK]; Stenstræde 3, DK-2620 Albertslund (DK). **WEDEL, Signe** [DK/DK]; Marskensgade 13, DK-2100 Copenhagen Ø (DK).
- (81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: AN OPTICAL ELEMENT FOR SHIELDING AGAINST LIGHT



(57) Abstract: An optical element (11) in the form of an at least partially transparent face comprises transparent areas and essentially non-transparent areas. The transparent areas are arranged sufficiently close for the intermediate and essentially non-transparent areas to be essentially invisible to the naked eye, at least when the element is viewed from a given distance. The essentially non-transparent areas are arranged sufficiently close and have a sufficient extent at right angles to the face for the intermediate, transparent areas to have such depth/width ratio that the optical element will, at a given point on the face, allow passage of light with given angles of incidence, while light having other angles of incidence are unable to pass the element at the point in question. Hereby an optical element is obtained that is able to better reduce the heating of the interior of a building that is caused by incoming solar radiation without the direct radiation and hence the view being blocked considerably.

WO 03/106802 A1



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/DK 03/00405

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E06B9/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E06B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 100 34 197 A (KAEFER ISOLIERTECHNIK) 31 January 2002 (2002-01-31) the whole document ---	1-18
A	DE 196 29 237 A (FRAUNHOFER GES FORSCHUNG) 20 February 1997 (1997-02-20) the whole document ---	1-18
A	DE 197 37 904 A (FRAUNHOFER GES FORSCHUNG) 11 March 1999 (1999-03-11) the whole document ---	1-18
A	EP 0 538 728 A (MUELLER HELMUT FRANK OTTOMAR P) 28 April 1993 (1993-04-28) the whole document ---	1-18
	--- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

29 September 2003

Date of mailing of the international search report

17 10 2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

ÅKE OLOFSSON /ELY

INTERNATIONAL SEARCH REPORT

International Application No

PCT/DK 03/00405

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 054 289 A (SCHWAB ARMIN DR ING) 22 November 2000 (2000-11-22) the whole document ---	1-18
A	WO 02 35046 A (EGHOLM KIM ;WILLEHADER HANS (SE)) 2 May 2002 (2002-05-02) the whole document ---	1-18
A	WO 92 16868 A (FAROUGHY DARA) 1 October 1992 (1992-10-01) the whole document -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/DK 03/00405

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 10034197	A	31-01-2002	DE 10034197 A1	31-01-2002
DE 19629237	A	20-02-1997	DE 19629237 A1	20-02-1997
			WO 9704207 A1	06-02-1997
DE 19737904	A	11-03-1999	DE 19737904 A1	11-03-1999
			AT 226681 T	15-11-2002
			DE 59806068 D1	28-11-2002
			WO 9911898 A1	11-03-1999
			EP 1009903 A1	21-06-2000
EP 0538728	A	28-04-1993	DE 4134955 A1	29-04-1993
			AT 158637 T	15-10-1997
			DE 59208923 D1	30-10-1997
			DK 538728 T3	22-12-1997
			EP 0538728 A1	28-04-1993
			ES 2108723 T3	01-01-1998
			GR 3025100 T3	30-01-1998
EP 1054289	A	22-11-2000	DE 19922973 A1	21-12-2000
			CA 2308965 A1	19-11-2000
			EP 1054289 A2	22-11-2000
			US 6467935 B1	22-10-2002
WO 0235046	A	02-05-2002	AU 1209602 A	06-05-2002
			WO 0235046 A2	02-05-2002
WO 9216868	A	01-10-1992	US 5033829 A	23-07-1991
			WO 9216868 A1	01-10-1992